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Application No. 10/671,699
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Shigeru FUKUDA

Group Art Unit: 1752

Application No. 10/671,699

Examiner: Richard L. Schilling

Filed: September 29, 2003

For: TRANSFER MEMBER AND MANUFACTURING METHOD THEREOF, AND IMAGE
FORMING APPARATUS USING THE SAME

DECLARATION UNDER 37 C.F.R. § 1.132

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

I, Shigeru FUKUDA, do declare and state as follows:

I graduated from the Okayama University, Faculty of Science,
Department of Physics with a Bachelor's Degree in Science in March
1982;

I joined Fuji Xerox Co., Ltd. in June 1997, and since that
time, I have been engaged in the development of materials for transfer
members;

I am the inventor of the subject matter disclosed and claimed
in the above-identified application; and

I am familiar with the Office Action of December 9, 2004 and
understand that the Examiner has rejected Claims 1 to 4 under 35 U.S.C.

§ 102(e) or § 103(a) as being unpatentable over Bando et al. (U.S. Patent Application Publication No. 2003/0157420 A1).

The following additional comparative experiment was carried out under my supervision in order to make the advantages of the subject matter more clear.

Experiment: Evaluation of Properties of Polyimide belt (transfer member)

A carbon black-containing polyimide acid N-methylpyrrolidone (NMP) solution of Comparative example 5 was prepared in accordance with paragraph [0145] of Bando'420, except that: the amount of carbon black was changed to 6.6 parts by weight, which corresponds to 22 phr; the mixing step was conducted by using a specific ball mill that consists of a cylindrical container which is made of stainless steel, has a diameter of 100 mm and a height of 150 mm, and contains 1587 g of stainless balls having a diameter of 15 mm at 50 rpm for 24 hours; and the carbon black dispersion was reacted by stirring under a nitrogen atmosphere at 60 °C for 24 hours. Then, the carbon black-containing polyimide acid NMP solution was processed in the same manner as described from page 25, last line to page 26, line 10 of the specification of the present application so as to provide a polyimide belt of Comparative example 5. A thickness of the polyimide belt of Comparative example 5 was measured as 70 µm.

A polyimide belt of Comparative example 6 was prepared in the same manner as in Example 1 described on pages 25 to 26 of the

specification of the present application, except that the amount of carbon black was changed to 22 phr, and the pressure for the colliding step was changed to 100 MPa. A thickness of the polyimide belt of Comparative example 6 was measured as 72 μm .

Further, a polyimide belt of Comparative example 7 was prepared in the same manner as in Example 1 described on pages 25 to 26 of the specification of the present application, except that the amount of carbon black was changed to 20.5 phr, and the pressure for the colliding step was changed to 150 MPa. A thickness of the polyimide belt of Comparative example 7 was measured as 71 μm .

Thus obtained Comparative examples 5 to 7 were evaluated in the same manner as described from page 30, line 17 to page 33, line 9 of the specification of the present application.

The results are shown in the following Table 2.

Table 2

	CB content (phr)	Surface resistivity (Ω/\square)	Volume resistivity ($\Omega\text{-cm}$)	Mean particle diameter of CB (μm)	Rate of change of surface resistivity (Ω/\square)	Surface property	Image density
Comparative example 5	22	1.2×10^8	7.8×10^6	289	unable to evaluate owing to too low surface resistivity	×	×
Comparative example 6	22	8.9×10^7	7.5×10^7	257	unable to evaluate owing to too low surface resistivity	×	×
Comparative example 7	20.5	1.4×10^{13}	1.3×10^{12}	240	unable to evaluate owing to too high surface resistivity	○	×

Comparative examples 5 to 7, which do not satisfy the conditions of the present invention, do not exhibit the desirable properties achieved by the present invention.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE: June 3, 2005

Shigeru Fukuda
shigeru FUKUDA

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